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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,542	01/29/2004	Kevin Chang	250907-1280	5363
24504	7590	04/05/2006	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			NGUYEN, THUAN T	
		ART UNIT		PAPER NUMBER
		2618		

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/767,542	CHANG ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	THUAN T. NGUYEN	2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-17 is/are allowed.
- 6) Claim(s) 18-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1-17 is allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest a circuit system for wireless communications with details of circuit arrangements comprising a printed circuit board, an antenna switch, a first filter, a first matching network, a converter, a second filter, a second matching network, a power amplifier, and the coupling of the matching networks as cited in claims 1 and 10.

### ***Claim Rejections - 35 USC 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --*

*(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.*

4. Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. U.S. Patent No. 6,876,836 B2).

Regarding claim 18, Liu teaches a radio frequency (RF) front end circuit system for transmitting and receiving RF signals via a first and a second antenna comprising a printed circuit board, and antenna switch with two input ports and two output ports for enabling any of the input ports to either of the output ports, wherein the output ports are coupled to the first and

second antenna, respectively (see Fig. 1 and col. 2/lines 11-41), and a filter and a power amplifier mounted on the printed circuit board (Fig. 3 and col. 3/lines 24-59).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

6. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. U.S. Patent No. 6,876,836 B2) in view of Jensen (US Patent 6,075,995).

As for claims 19 and 20, Liu does not further address the components for the printed circuit board (PCB) and the interconnection among the antenna switch, the filter, and the power amplifier with the range in width and the spacing; however, Jensen teaches the PCB has these features of four layers of copper and three layers of substrate and a thickness of about 40 mils as well as the range in width and the spacing between the signal traces and a ground plane (see Jensen, Fig. 5 and col. 7/lines 45-61). Therefore, it would have been obvious to one of ordinary skill in the art to modify Liu's system with a detailed PCB with constructed materials and the size and the spacing as taught by Jensen for containing and arranging the RF front end within the RF communication device.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Liu et al., Tarusawa et al, and Baldwin et al. (in PTO 892 attached) disclose systems related to communication devices with two antennas and techniques.

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to the New Central Fax number:**

(571) 273-8300, (for Technology Center 2600 only)

Hand deliveries must be made to Customer Service Window,  
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Thuan Nguyen whose telephone number is (571) 272-7895.

The examiner can normally be reached on Monday-Friday from 9:30 AM to 7:00 PM, with alternate Fridays off.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TONY T. NGUYEN  
PATENT EXAMINER

Tony T. Nguyen  
Art Unit 2618  
March 30, 2006